

THE X-12-ARIMA FAME INTERFACE

Margi Keating

February 27, 2002

An interface has been added to the *X-12-ARIMA* program which allows users to input series from a **FAME** database, and to store the output series which normally would be written to ASCII datasets in a **FAME** database. Of course, the user must have a **FAME** license, and the **FAME Host Language Interface(HLI)** libraries.

1 UNIX Considerations

To use the **FAME** interface, you must first:

- Copy the Makefile that is most appropriate for your version of **FAME** to the file **Makefile**. **fame77.Makefile** is the Makefile for version 7.7, **fame80.Makefile** is for version 8.0, etc.
- Edit the Makefile to reflect the path name of your **HLI** directory instead of */OPT/FAMELIB/HLI* in the two references in the Makefile where **FAMELIB** is specified.
- Make the **x12a** program and move it to the appropriate library.

It is useful to create a script like the following to execute the program. Assume that */usr/famelib* is your **FAME** library, that */opt/x12arima/source* is your source library for **X-12-ARIMA**, and that the executable is **x12a** in */opt/x12arima*. The following script sets the **FAME** environmental variable, copies **x12a.mdl** to your working directory, and calls the program:

```
#!/bin/sh
#
OP=$LD_LIBRARY_PATH
LD_LIBRARY_PATH=$LD_LIBRARY_PATH:/opt/SUNWspro/lib
export LD_LIBRARY_PATH
FAME='/usr/famelib'
export FAME
cp /opt/x12arima/x12a.mdl .
newargs=
while [ $# -gt 0 ]
```

```

do
  case $1 in
    *) newargs="$newargs $1" ; shift ;;
  esac
done
/opt/x12arima/x12a $newargs
LD_LIBRARY_PATH=$OP
export LD_LIBRARY_PATH

```

If the script is named **x12arima**, and the input specifications are given in **input.spc**, the program can be executed with:

```
x12arima input
```

2 X-12-ARIMA input

An input series can be read from a **FAME** database. Specify the series name in the **name** statement of the **series** spec. Give the pathname of the **FAME** database where the series exists with the **file** statement. Specify 'fame' in the **format** statement.

Many **FAME** series can be used as input for the same spec file. In the **series** spec, include an **fnmlst** keyword giving the name of a **FAME** namelist and **fnlsdb** specifying the database where the namelist resides. (Note: You must still enter a **file** statement for the database where the series actually exist, and put 'fame' in the **format** statement since the namelist and the series databases may be different.)

The prior adjustment factors in the **transform** spec can come from **FAME**. Enter the name of the series in the **name** statement, the database name in the **file** statement, and 'fame' in the **format** specification. (Two **FAME** database names and two series names can be entered if both permanent and temporary factors are required.)

User variables for the **x11regression** or the **regression** spec can come from **FAME**. Simply enter the series names in the **user** statement, the **FAME** database name in the **file** statement, and specify the **format** as 'fame'.

The names of the user variables in the **x11regression** or the **regression** spec can come from a **FAME** namelist. Enter the **FAME** namelist name in single quotes with the new keyword **regnlst**. Enter the namelist database name in single quotes with the keyword **regnldb**. (Note that the database for the series whose names are in the namelist must still be given with the **file** statement, and the **format** must still be 'fame'.)

Series computed by **X-12-arima** can be saved in **FAME**. Specify the output **FAME** database name with the **famesave** keyword in the **series** spec. It will be assumed that all tables given with the **save** keyword in the spec file should be saved in the **famesave** database.

To store series in a **FAME** database, give the full pathname of the output database with the keyword **famesave** in the **series** spec. If the keyword **fame-save** is specified, all tables retrieved with the **save** keyword will be stored in the

famesave database. Normally the **FAME** name of the output series will be created by appending the table name to the series name. For example, table **d8** for series **ser** would be **ser.d8**. There are more meaningful extensions, though for certain tables to create more consistency with **FAME** names.

X-12 TABLE	X-12 Abbreviation	FAME EXTENSION
*****	*****	*****
seasonal	d10	seas
seasadj	d11	adju
trend	d12	tren
irregular	d13	irre
adjustfac	d16	comb
tradingday	td	trad
pacf	pcf	pacf
specori	sp0	specori
specsa	sp1	specsa
specirr	sp2	specirr
forecasts	fct	fore

3 Table of FAME Interface keywords

The following table lists keywords used for implementing the FAME Interface.

NAME	X-12 Spec	Indicates
****	*****	*****
name	series	The input series name
file	series	Database with the input series
format	series	format='fame' for a FAME database
fnmlst	series	FAME namelist of input series
fnlsdb	series	Database with fnmlst
famesave	series	Name of the output FAME database
name	transform	Series of prior adj. factors
file	transform	Database with the pr. adj. factors
user	regression	Names of the user variables
file	regression	Database with the user variables
format	regression	format='fame' for FAME database
regnlst	regression	Namelist for user variables
regnldb	regression	Database with regnlst
user	x11regression	Names of the user variables
file	x11regression	Database with the user variables
format	x11regression	format='fame' for FAME database
regnlst	x11regression	Namelist for user variables
regnldb	x11regression	Database with regnlst

4 Sample Input File with a Namelist of Input Series

The following file is executed for all of the names found in the **FAME** namelist **mynamlst** which is found in database **/opt/x12arima/examples/myname.db**. The series are also found in the same database. The seasonally adjusted series are saved series in the database **myout.db** in the current directory.

```
series{
  start=1980.jan
  period=12
  fnlsdb='opt/x12arima/final/examples/myname.db'
  fnmlst='mynamlst'
  format='fame'
  file='/opt/x12arima/final/examples/myname.db'
  famesave='myout.db'
  title="Additive Seasonal Adjustment"
}
x11{
  print=( none + f3)
  mode=add
  seasonalma=x11default
  savelog=( m7 q )
  save=(d11)
}
```

5 Sample File with User Regression Variables from FAME

```
series{
  title='beauto : BEA unit auto sales'
  start=1972.jan
  format='fame'
  file='/opt/x12arima/final/examples/mydata.db'
  name='beauto'
}
transform{
  function=log
}
regression{
  variables=(const td A01975.Feb A01988.Dec)
  regnlst='usernm'
  regnldb='/opt/x12arima/final/examples/mydata.db'
  start=1968.jan
  format='fame'
```

```
file='/opt/x12arima/final/examples/mydata2.db'
usertype=a0
}
arima{
  model(0 1 1)(1 0 1)
}
check{  }
x11{  }
history{
  start=1979.jan
  estimates=aic
  fixmdl=no
}
```